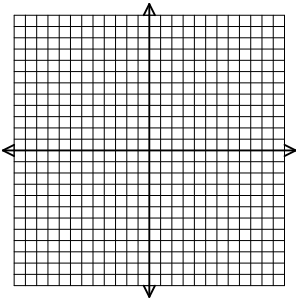


**Practice 1.1.2****Remember to show your work!**

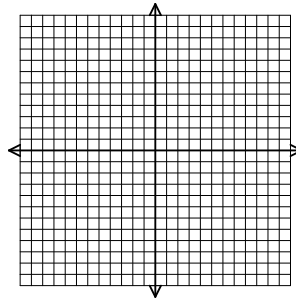
1-15. Rhianna says she can draw different functions that have the same x-intercepts and the same domain and range. Her teammates say, "No, that's impossible!" But Rhianna insists, "It is possible, we just need to sketch the graphs."

- a. What if the x-intercepts are  $(-5,0)$ ,  $(2,0)$ , and  $(6,0)$ , the domain is  $-5 \leq x \leq 7$ , and the range is  $-4 \leq y \leq 10$ ? Is there more than one possible function? Give examples to help explain why or why not.

Example 1:

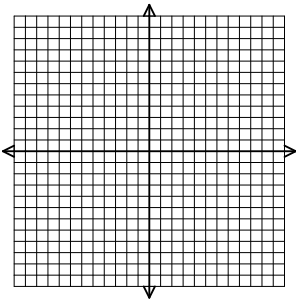


Example 2: (if possible)

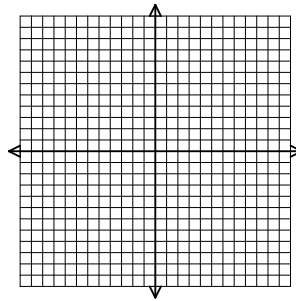


- b. What if the x-intercepts are  $(-4,0)$  and  $(2,0)$ , the domain is all real numbers, and the range is  $y \geq -8$ ? Is there more than one possible function? Give examples of multiple functions or explain why there can be only one.

Example 1:



Example 2: (if possible)

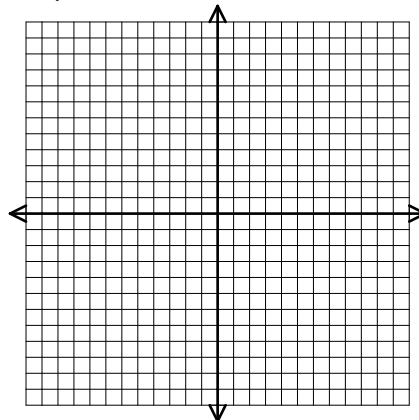


1-16 Junior is saving money in his piggy bank. He starts with 10 cents and adds two pennies each day. Create a table, draw a complete graph, and write an equation to model this situation. If you need extra help you can open your ebook and follow the link to the Desmos tool for this problem.

Table:

x	y

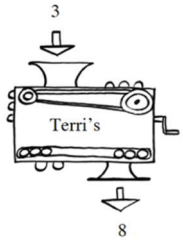
Graph:



Equation:

1-18 Terri's project for the Math Fair is a magnificent black box that she called a function machine. If you put 3 into her machine, the output is 8. If you put in 10, the output is 29; and if you put in 20, the output is 59.

- a. What would her machine do to an input of 5? What about  $-1$ ? What about  $x$ ? Making an input  $\rightarrow$  output table may help.

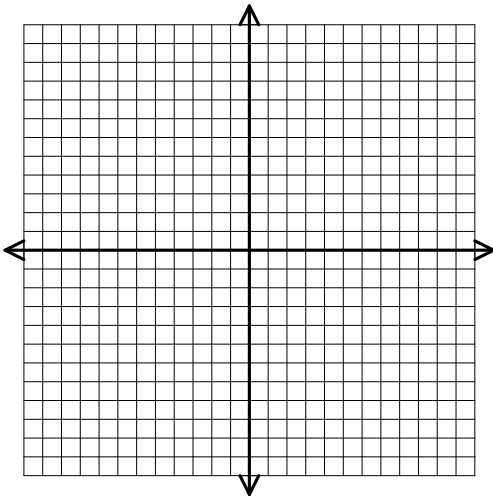


- b. Write an equation for Terri's machine

1-21 Factor each expression completely.

a. $x^2 - x - 72$	b. $6x^2 + 48x$
c. $x^2 - 8x + 16$	d. $x^2 - 49$

1-22 Make a complete graph of the function  $f(x) = \sqrt{x} - 2$ . Fully describe the graph.



Description:

1-23. Use the Zero Product Property to solve for x.

a. $(x + 13)(x - 7) = 0$	b. $(2x + 3)(3x - 7) = 0$
c. $x(x - 3) = 0$	d. $x^2 - 5x = 0$
e. $x^2 - 2x - 35 = 0$	f. $3x^2 + 14x - 5 = 0$

1-25. Given  $f(x) = -\frac{2}{3}x + 3$  and  $g(x) = 2x^2 - 5$ , complete parts (a) through (d).

a. Calculate $f(3)$	b. Solve $f(x) = -5$
c. Calculate $g(-3)$	d. Solve $g(x) = -7$